#9

SEQUENCE LISTING

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     Erickson, Mary Ruth
     Fruebis, Joachim
     Bihain, Bernard

<120> Methods Of Screening For Compounds That Modulate the
     LSR-Leptin Interaction and Their Use in the Prevention
     and Treatment of Obesity-Related Diseases

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<140> 09/668,558
<141> 2000-09-22

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Pro Gly Asp Val Asp Arg Xaa Ser Ser Ala Gly Gly Gln Gly Ser Tyr
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gta ccc ctg ctt cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc      1267
Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg
                375                 380                 385
agt ggc tac agg att cag gcc agc cag cag gac gac tcc atg cgg gtc      1315
Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val
                390                 395                 400
```

27

```
ctg tac tac atg gag aag gag ctg gcc aac ttc gac cct tct cga cst      1363
Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Xaa
405                     410                 415                 420
ggc ccc ccc agt ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc      1411
Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser
                425                 430                 435
ctc cac gag gac gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc      1459
Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu
                440                 445                 450
acc ccg atc cgg gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc      1507
Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro
                455                 460                 465
agg gga tgg gac cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg      1555
Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp
                470                 475                 480
cgg gcc agg cgg ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc      1603
Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu
485                 490                 495                 500
acc ccg ccg agc acc gcc gag tca ggg agc agg tct ccc acg agt aat      1651
Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn
                505                 510                 515
ggt ggg aga agc cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac      1699
Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp
                520                 525                 530
gac ctc tat gac caa gac gac tcg agg gac ttc cca cgc tcc cgg gac      1747
Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp
                535                 540                 545
ccc cac tac gac gac ttc agg tct cgg gag cgc cct cct gcc gac ccc      1795
Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro
550                 555                 560
agg tcc cac cac cac cgt acc cgg gac cct cgg gac aac ggc tcc agg      1843
Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg
565                 570                 575                 580
tcc ggg gac ctc ccc tat gat ggg cgg cta ctg gag gag gct gtg agg      1891
Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg
                585                 590                 595
aag aag ggg tcg gag gag agg agg aga ccc cac aag gag gag gag gaa      1939
Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu
                600                 605                 610
gag gcc tac tac ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg      1987
Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
                615                 620                 625
cag gcg tcc cga gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg      2035
Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg
                630                 635                 640
gaa agt tta gtc gtc tga tctgacgttt tctacgtagc ttttgkattt           2083
Glu Ser Leu Val Val  *
645                 650
tttttttaa tttgaaggaa cactgatgaa gccctgccat acccctcccg agtctaataa   2143
aacgtataat cacaa                                                    2158
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<210> 3
<211> 649
<212> PRT
<213> Homo sapiens

<220>
<221> VARIANT
<222> 363
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<223> 9-7-325   : polymorphic amino acid Ser or Asn

<220>
<221> VARIANT
<222> 420
<223> 9-9-246   : polymorphic amino acid Pro or Arg

<220>
<221> VARIANT
<222> 519
<223> LSRX9f13-BM : polymorphic amino acid deletion of Arg

<400> 3

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Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1               5                   10                  15
Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
            20              25                  30
Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
        35              40                  45
Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
    50              55                  60
Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65              70                  75                  80
Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
            85                  90                  95
Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
            100                 105                 110
Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
        115                 120                 125
Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
    130                 135                 140
Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145                 150                 155                 160
Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
            165                 170                 175
Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
        180                 185                 190
Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
    195                 200                 205
Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
    210                 215                 220
Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly
225                 230                 235                 240
Arg Thr Ser Gly Val Ala Glu Leu Leu Pro Gly Phe Gln Ala Gly Pro
            245                 250                 255
Ile Glu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ala Phe Leu
            260                 265                 270
Ile Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr
        275                 280                 285
Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys
    290                 295                 300
Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro
305                 310                 315                 320
Ser Ile Tyr Ala Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr
            325                 330                 335
Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr
            340                 345                 350
Pro Gly Gly Tyr Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly
            355                 360                 365
```

29

```
Gln Gly Ser Tyr Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala
    370                 375                 380
Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp
385                 390                 395                 400
Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp
                405                 410                 415
Pro Ser Arg Pro Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser
            420                 425                 430
Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg
            435                 440                 445
Gly Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser
    450                 455                 460
Pro Arg Ser Pro Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala
465                 470                 475                 480
Gly Gly Gly Trp Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala
            485                 490                 495
Leu Asp Asp Leu Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser
            500                 505                 510
Pro Thr Ser Asn Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser
    515                 520                 525
Arg Ser Arg Asp Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro
    530                 535                 540
Arg Ser Arg Asp Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro
545                 550                 555                 560
Pro Ala Asp Pro Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp
            565                 570                 575
Asn Gly Ser Arg Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu
            580                 585                 590
Glu Ala Val Arg Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys
            595                 600                 605
Glu Glu Glu Glu Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser
    610                 615                 620
Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu
625                 630                 635                 640
Ala Leu Ser Arg Glu Ser Leu Val Val
            645


<210> 4
<211> 2101
<212> DNA
<213> Homo sapiens

<220>
<221> allele
<222> 595
<223> 9-3-324  : polymorphic base  C  or  T


<220>
<221> allele
<222> 883
<223> 9-6-187  : polymorphic base  C  or  T


<220>
<221> allele
<222> 1134
<223> 9-7-325  : polymorphic base  A  or  G


<220>
<221> allele
```

<222> 1305
<223> 9-9-246   :   polymorphic   base   G   or   C

<220>
<221> allele
<222> 1601
<223> LSRX9f13-BM   :   polymorphic   base   deletion   of   AGG

<220>
<221> allele
<222> 2022
<223> LSRX9f14-BM   :   polymorphic   base   T   or   G

<400> 4
```
tggagtgtgg ctcggaggac cgcggcgggt caagcacctt tctcccccat atctgaaagc     60
atgccctttg tccacgtcgt ttacgctcat taaaacttcc aga atg caa cag gac    115
                                                Met Gln Gln Asp
                                                 1

gga ctt gga gta ggg aca agg aac gga agt ggg aag ggg agg agc gtg    163
Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys Gly Arg Ser Val
5                   10                  15                  20
cac ccc tcc tgg cct tgg tgc gcg ccg cgc ccc cta agg tac ttt gga    211
His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu Arg Tyr Phe Gly
                25                  30                  35
agg gac gcg cgg gcc aga cgc gcc cag acg gcc gcg atg gcg ctg ttg    259
Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala Met Ala Leu Leu
            40                  45                  50
gcc ggc ggg ctc tcc aga ggg ctg ggc tcc cac ccg gcc gcc gca ggc    307
Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro Ala Ala Ala Gly
            55                  60                  65
cgg gac gcg gtc gtc ttc gtg tgg ctt ctg ctt agc acc tgg tgc aca    355
Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser Thr Trp Cys Thr
    70                  75                  80
gct cct gcc agg gcc atc cag gtg acc gtg tcc aac ccc tac cac gtg    403
Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn Pro Tyr His Val
85                  90                  95                  100
gtg atc ctc ttc cag cct gtg acc ctg ccc tgt acc tac cag atg acc    451
Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Thr
                105                 110                 115
tcg acc ccc acg caa ccc atc gtc atc tgg aag tac aag tct ttc tgc    499
Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys
            120                 125                 130
cgg gac cgc atc gcc gat gcc ttc tcc ccg gcc agc gtc gac aac cag    547
Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln
            135                 140                 145
ctc aat gcc cag ctg gca gcc ggg aac cca ggc tac aac ccc tac gty    595
Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val
    150                 155                 160
gag tgc cag gac agc gtg cgc acc gtc agg gtc gtg gcc acc aag cag    643
Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln
165                 170                 175                 180
ggc aac gct gtg acc ctg gga gat tac tac cag ggc cgg agg att acc    691
Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr
                185                 190                 195
atc acc gga aat gct gac ctg acc ttt gac cag acg gcg tgg ggg gac    739
Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr Ala Trp Gly Asp
                200                 205                 210
agt ggt gtg tat tac tgc tcc gtg gtc tca gcc cag gac ctc cag ggg    787
Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Gln Gly
```

31

```
                215                     220                     225
aac aat gag gcc tac gca gag ctc atc gtc ctt gac tgg ctc ttc gtg    835
Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val
        230                     235                     240
gtt gtg gta tgc ctg gct gcc ttc ctc atc ttc ctc ctc ctg ggc aty    883
Val Val Val Cys Leu Ala Ala Phe Leu Ile Phe Leu Leu Leu Gly Ile
245                     250                     255                     260
tgc tgg tgc cag tgc tgc ccg cac act tgc tgc tgc tac gtc agg tgc    931
Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys
                        265                     270                     275
ccc tgc tgc cca gac aag tgc tgc tgc ccc gag gcc ctg tat gcc gcc    979
Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala
                280                     285                     290
ggc aaa gca gcc acc tca ggt gtt ccc agc att tat gcc ccc agc acc   1027
Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Thr
        295                     300                     305
tat gcc cac ctg tct ccc gcc aag acc cca ccc cca cca gct atg att   1075
Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile
        310                     315                     320
ccc atg ggc cct gcc tac aac ggg tac cct gga gga tac cct gga gac   1123
Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr Pro Gly Asp
325                     330                     335                     340
gtt gac agg art agc tca gct ggt ggc caa ggc tcc tat gta ccc ctg   1171
Val Asp Arg Xaa Ser Ser Ala Gly Gly Gln Gly Ser Tyr Val Pro Leu
                345                     350                     355
ctt cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc agt ggc tac   1219
Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg Ser Gly Tyr
                360                     365                     370
agg att cag gcc agc cag cag gac gac tcc atg cgg gtc ctg tac tac   1267
Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr
                375                     380                     385
atg gag aag gag ctg gcc aac ttc gac cct tct cga cst ggc ccc ccc   1315
Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Xaa Gly Pro Pro
        390                     395                     400
agt ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc ctc cac gag   1363
Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu
405                     410                     415                     420
gac gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc acc ccg atc   1411
Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu Thr Pro Ile
                425                     430                     435
cgg gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc agg gga tgg   1459
Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro Arg Gly Trp
                440                     445                     450
gac cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg cgg gcc agg   1507
Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp Arg Ala Arg
                455                     460                     465
cgg ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc acc ccg ccg   1555
Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu Thr Pro Pro
        470                     475                     480
agc acc gcc gag tca ggg agc agg tct ccc acg agt aat ggt ggg aga   1603
Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn Gly Gly Arg
485                     490                     495                     500
agc cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac gac ctc tat   1651
Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr
                505                     510                     515
gac caa gac gac tcg agg gac ttc cca cgc tcc cgg gac ccc cac tac   1699
Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp Pro His Tyr
                520                     525                     530
gac gac ttc agg tct cgg gag cgc cct cct gcc gac ccc agg tcc cac   1747
```

```
Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro Arg Ser His
    535                     540                 545
cac cac cgt acc cgg gac cct cgg gac aac ggc tcc agg tcc ggg gac        1795
His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg Ser Gly Asp
    550                     555                 560
ctc ccc tat gat ggg cgg cta ctg gag gag gct gtg agg aag aag ggg        1843
Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg Lys Lys Gly
565                     570                 575                 580
tcg gag gag agg agg aga ccc cac aag gag gag gag gaa gag gcc tac        1891
Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu Glu Ala Tyr
                585                 590                 595
tac ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg cag gcg tcc        1939
Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser
                600                 605                 610
cga gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg gaa agt tta        1987
Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu
    615                     620                 625
gtc gtc tga tctgacgttt tctacgtagc ttttgkattt tttttttaa               2036
Val Val  *
    630
tttgaaggaa cactgatgaa gccctgccat acccctcccg agtctaataa aacgtataat     2096
cacaa                                                                 2101


<210> 5
<211> 630
<212> PRT
<213> Homo sapiens


<220>
<221> VARIANT
<222> 344
<223> 9-7-325  :  polymorphic  amino  acid  Ser  or  Asn


<220>
<221> VARIANT
<222> 401
<223> 9-9-246  :  polymorphic  amino  acid  Pro  or  Arg


<220>
<221> VARIANT
<222> 500
<223> LSRX9f13-BM  :  polymorphic  amino  acid  deletion  of  Arg


<400> 5
Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1               5                   10                  15
Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
        20                  25                  30
Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
        35                  40                  45
Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
    50                  55                  60
Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65                  70                  75                  80
Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
                85                  90                  95
Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
            100                 105                 110
Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
```

33

```
                    115                     120                     125
Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
        130                     135                     140
Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145                     150                     155                     160
Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
                    165                     170                     175
Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
            180                     185                     190
Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
            195                     200                     205
Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
    210                     215                     220
Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp
225                     230                     235                     240
Trp Leu Phe Val Val Val Val Cys Leu Ala Ala Phe Leu Ile Phe Leu
                    245                     250                     255
Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys
                260                     265                     270
Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala
            275                     280                     285
Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr
        290                     295                     300
Ala Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro
305                     310                     315                     320
Pro Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly
                325                     330                     335
Tyr Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser
            340                     345                     350
Tyr Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val
        355                     360                     365
Arg Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg
    370                     375                     380
Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg
385                     390                     395                     400
Pro Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr
                405                     410                     415
Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala
            420                     425                     430
Leu Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser
            435                     440                     445
Pro Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly
    450                     455                     460
Trp Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp
465                     470                     475                     480
Leu Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser
            485                     490                     495
Asn Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg
        500                     505                     510
Asp Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg
        515                     520                     525
Asp Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp
    530                     535                     540
Pro Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser
545                     550                     555                     560
Arg Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val
                565                     570                     575
Arg Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu
            580                     585                     590
```

34

```
Glu Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp
        595                 600                 605
Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser
        610                 615                 620
Arg Glu Ser Leu Val Val
625                 630
```

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<210> 6
<211> 1954
<212> DNA
<213> Homo sapiens

<220>
<221> allele
<222> 595
<223> 9-3-324  :  polymorphic  base  C  or  T


<220>
<221> allele
<222> 987
<223> 9-7-325  :  polymorphic  base  A  or  G


<220>
<221> allele
<222> 1158
<223> 9-9-246  :  polymorphic  base  G  or  C


<220>
<221> allele
<222> 1454
<223> LSRX9f13-BM  :  polymorphic  base  deletion  of  AGG


<220>
<221> allele
<222> 1875
<223> LSRX9f14-BM  :  polymorphic  base  T  or  G


<400> 6
tggagtgtgg ctcggaggac cgcggcgggt caagcacctt tctcccccat atctgaaagc      60
atgccctttg tccacgtcgt ttacgctcat taaaacttcc aga atg caa cag gac     115
                                             Met Gln Gln Asp
                                              1

gga ctt gga gta ggg aca agg aac gga agt ggg aag ggg agg agc gtg     163
Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys Gly Arg Ser Val
5                   10                  15                  20
cac ccc tcc tgg cct tgg tgc gcg ccg cgc ccc cta agg tac ttt gga     211
His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu Arg Tyr Phe Gly
              25                  30                  35
agg gac gcg cgg gcc aga cgc gcc cag acg gcc gcg atg gcg ctg ttg     259
Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala Met Ala Leu Leu
          40                  45                  50
gcc ggc ggg ctc tcc aga ggg ctg ggc tcc cac ccg gcc gcc gca ggc     307
Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro Ala Ala Ala Gly
          55                  60                  65
cgg gac gcg gtc gtc ttc gtg tgg ctt ctg ctt agc acc tgg tgc aca     355
Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser Thr Trp Cys Thr
          70                  75                  80
gct cct gcc agg gcc atc cag gtg acc gtg tcc aac ccc tac cac gtg     403
Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn Pro Tyr His Val
```

35

```
        85                    90                    95                    100
gtg atc ctc ttc cag cct gtg acc ctg ccc tgt acc tac cag atg acc    451
Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Thr
                     105                   110                   115
tcg acc ccc acg caa ccc atc gtc atc tgg aag tac aag tct ttc tgc    499
Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys
                     120                   125                   130
cgg gac cgc atc gcc gat gcc ttc tcc ccg gcc agc gtc gac aac cag    547
Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln
                 135                   140                   145
ctc aat gcc cag ctg gca gcc ggg aac cca ggc tac aac ccc tac gty    595
Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val
             150                   155                   160
gag tgc cag gac agc gtg cgc acc gtc agg gtc gtg gcc acc aag cag    643
Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln
165                   170                   175                   180
ggc aac gct gtg acc ctg gga gat tac tac cag ggc cgg agg att acc    691
Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr
                     185                   190                   195
atc acc gga aat gct gac ctg acc ttt gac cag acg gcg tgg ggg gac    739
Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr Ala Trp Gly Asp
                     200                   205                   210
agt ggt gtg tat tac tgc tcc gtg gtc tca gcc cag gac ctc cag ggg    787
Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Gln Gly
                 215                   220                   225
aac aat gag gcc tac gca gag ctc atc gtc ctt gtg tat gcc gcc ggc    835
Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val Tyr Ala Ala Gly
             230                   235                   240
aaa gca gcc acc tca ggt gtt ccc agc att tat gcc ccc agc acc tat    883
Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Thr Tyr
245                   250                   255                   260
gcc cac ctg tct ccc gcc aag acc cca ccc cca cca gct atg att ccc    931
Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro
                 265                   270                   275
atg ggc cct gcc tac aac ggg tac cct gga gga tac cct gga gac gtt    979
Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr Pro Gly Asp Val
             280                   285                   290
gac agg art agc tca gct ggt ggc caa ggc tcc tat gta ccc ctg ctt    1027
Asp Arg Xaa Ser Ser Ala Gly Gly Gln Gly Ser Tyr Val Pro Leu Leu
                 295                   300                   305
cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc agt ggc tac agg    1075
Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg Ser Gly Tyr Arg
         310                   315                   320
att cag gcc agc cag cag gac gac tcc atg cgg gtc ctg tac tac atg    1123
Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met
325                   330                   335                   340
gag aag gag ctg gcc aac ttc gac cct tct cga cst ggc ccc ccc agt    1171
Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Xaa Gly Pro Pro Ser
                 345                   350                   355
ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc ctc cac gag gac    1219
Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp
                 360                   365                   370
gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc acc ccg atc cgg    1267
Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu Thr Pro Ile Arg
             375                   380                   385
gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc agg gga tgg gac    1315
Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro Arg Gly Trp Asp
         390                   395                   400
cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg cgg gcc agg cgg    1363
```

```
Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp Arg Ala Arg Arg
405                       410                 415                 420
ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc acc ccg ccg agc      1411
Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu Thr Pro Pro Ser
                    425                 430                 435
acc gcc gag tca ggg agc agg tct ccc acg agt aat ggt ggg aga agc      1459
Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn Gly Gly Arg Ser
                440                 445                 450
cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac gac ctc tat gac      1507
Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp
            455                 460                 465
caa gac gac tcg agg gac ttc cca cgc tcc cgg gac ccc cac tac gac      1555
Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp Pro His Tyr Asp
        470                 475                 480
gac ttc agg tct cgg gag cgc cct cct gcc gac ccc agg tcc cac cac      1603
Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro Arg Ser His His
485                 490                 495                 500
cac cgt acc cgg gac cct cgg gac aac ggc tcc agg tcc ggg gac ctc      1651
His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg Ser Gly Asp Leu
                505                 510                 515
ccc tat gat ggg cgg cta ctg gag gag gct gtg agg aag aag ggg tcg      1699
Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg Lys Lys Gly Ser
            520                 525                 530
gag gag agg agg aga ccc cac aag gag gag gag gaa gag gcc tac tac      1747
Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu Glu Ala Tyr Tyr
            535                 540                 545
ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg cag gcg tcc cga      1795
Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg
        550                 555                 560
gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg gaa agt tta gtc      1843
Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val
565                 570                 575                 580
gtc tga tctgacgttt tctacgtagc ttttgkattt tttttttaa tttgaaggaa       1899
Val  *
cactgatgaa gccctgccat accccctcccg agtctaataa aacgtataat cacaa         1954


<210> 7
<211> 581
<212> PRT
<213> Homo sapiens

<220>
<221> VARIANT
<222> 295
<223> 9-7-325  :  polymorphic  amino  acid  Ser  or  Asn


<220>
<221> VARIANT
<222> 352
<223> 9-9-246  :  polymorphic  amino  acid  Pro  or  Arg


<220>
<221> VARIANT
<222> 451
<223> LSRX9f13-BM  :  polymorphic  amino  acid  deletion  of  Arg


<400> 7
Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1               5                   10                  15
```

```
Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
        20                  25                  30
Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
        35                  40                  45
Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
        50              55                  60
Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65                  70                  75                  80
Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
                85                  90                  95
Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
            100                 105                 110
Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
        115                 120                 125
Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
    130                 135                 140
Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145                 150                 155                 160
Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
            165                 170                 175
Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
            180                 185                 190
Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
        195                 200                 205
Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
    210                 215                 220
Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val
225                 230                 235                 240
Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala
                245                 250                 255
Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro
            260                 265                 270
Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr
        275                 280                 285
Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr
    290                 295                 300
Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg
305                 310                 315                 320
Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val
                325                 330                 335
Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro
            340                 345                 350
Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser
        355                 360                 365
Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu
    370                 375                 380
Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro
385                 390                 395                 400
Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp
            405                 410                 415
Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu
            420                 425                 430
Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn
        435                 440                 445
Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp
    450                 455                 460
Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp
465                 470                 475                 480
Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro
```

```
                      485                      490                      495
Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg
            500                      505                      510
Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg
            515                      520                      525
Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu
            530                      535                      540
Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
545                      550                      555                      560
Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg
                      565                      570                      575
Glu Ser Leu Val Val
            580


<210> 8
<211> 2097
<212> DNA
<213> Rattus norvegicus

<400> 8
accgctcacc aggtcagttg tccccggaaa gccgaaggca tgagcttcgc ccaagttctt        60
tttatgggtt agaactcctc cagagcgggg gaaaaaggac ttggaatagg ggcgggacgg       120
agcacgcacc cttctccgcc ttggttctcg ccgcgccccc tactctcggg atacttggga       180
ggggacgcgc gggcaccgtc gctgctagac ggccgcg atg gcg ccg gcg gcc ggc       235
                                           Met Ala Pro Ala Ala Gly
                                           1               5
gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg       283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
            10                  15                  20
tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag       331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
        25                  30                  35
gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg       379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
    40                  45                  50
acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc       427
Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
55                  60                  65                  70
gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc       475
Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala
                75                  80                  85
ttc tct cct gcc agt gtg gac aac cag cta aat gcc cag ttg gca gct       523
Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
            90                  95                  100
ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc       571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
            105                 110                 115
act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga       619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
        120                 125                 130
gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg       667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135                 140                 145                 150
acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct       715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
                155                 160                 165
gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag       763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
            170                 175                 180
```

39

```
ctc atc gtc ctt ggc agg acc tca gag gcc cct gag ctc cta cct ggt      811
Leu Ile Val Leu Gly Arg Thr Ser Glu Ala Pro Glu Leu Leu Pro Gly
        185                 190                 195

ttt cgg gcg ggg ccc ttg gaa gat tgg ctc ttt gtg gtc gtg gtc tgc      859
Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu Phe Val Val Val Val Cys
        200                 205                 210

ctg gcg agc ctc ctc ctc ttc ctc ctc ctg ggc atc tgc tgg tgc cag      907
Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln
215                 220                 225                 230

tgc tgt cct cac acc tgc tgc tgc tat gtc cga tgt ccc tgc tgc cca      955
Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro
        235                 240                 245

gac aag tgc tgt tgc cct gag gct ctt tat gct gct ggc aaa gca gcc     1003
Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala
        250                 255                 260

acc tca ggt gtc ccg agc atc tat gcc ccc agc atc tat acc cac ctc     1051
Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu
        265                 270                 275

tca cct gcc aag acc cca cca cct ccg cct gcc atg att ccc atg ggc     1099
Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro Met Gly
        280                 285                 290

cct ccc tat ggg tac cct gga gac ttt gac aga cat agc tca gtt ggt     1147
Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly
295                 300                 305                 310

ggc cac agc tcc caa gta ccc ctg ctg cgt gac gtg gat ggc agt gta     1195
Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val
        315                 320                 325

tct tca gaa gta cga agt ggc tac agg atc cag gct aac cag caa gat     1243
Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp
        330                 335                 340

gac tcc atg agg gtc cta tac tat atg gag aaa gag cta gcc aac ttt     1291
Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe
        345                 350                 355

gac cct tcc cga cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg     1339
Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met
        360                 365                 370

agt gaa gta acc tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc     1387
Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser
375                 380                 385                 390

agg gct cct gcc ctc acc ccc atc agg gat gag gag tgg aat cgc cac     1435
Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His
        395                 400                 405

tcc cca cag agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa     1483
Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln
        410                 415                 420

cca agg ggt ggt tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat     1531
Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp
        425                 430                 435

gct cta gat gat atc aac cgg cct ggc tcc act gaa tca gga cgg tct     1579
Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser
        440                 445                 450

tct ccc cca agt agt gga cgg aga gga cgg gcc tat gca cct cca aga     1627
Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg
455                 460                 465                 470

agt cgc agc cgg gat gac ctc tat gac ccg gac gat cct agg gac ttg     1675
Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu
        475                 480                 485

cca cat tcc cga gat ccc cac tat tat gac gac atc agg tct aga gat     1723
Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp
```

40

```
            490                 495                 500
cca cgt gct gac ccc aga tcc cgt cag cga tcc cga gat cct cgg gat    1771
Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp
        505                 510                 515
gct ggc ttc agg tca agg gac cct cag tat gat ggg cga cta tta gaa    1819
Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu
        520                 525                 530
gag gct tta aag aaa aag ggg tcg ggc gag aga agg agg gtt tac agg    1867
Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg
535                 540                 545                 550
gag gaa gaa gag gaa gag gag ggc caa tac ccc cca gca cct cca cct    1915
Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro
                555                 560                 565
tac tca gag act gac tcg cag gcc tca cgg gag agg agg ctg aaa aag    1963
Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys
        570                 575                 580
aat ttg gcc ctg agt cgg gaa agt tta gtc gtc tga tccacgtttt        2009
Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val  *
        585                 590
gtatgtagct tttgtacttt tttttaatt ggaatcaata ttgatgaaac ttcaagccta  2069
ataaaatgtc taatcacaaa aaaaaaaa                                     2097


<210> 9
<211> 593
<212> PRT
<213> Rattus norvegicus

<400> 9
Met Ala Pro Ala Ala Gly Ala Cys Ala Gly Ala Pro Asp Ser His Pro
1               5                   10                  15
Ala Thr Val Val Phe Val Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp
                20                  25                  30
Pro Ala Ser Ala Ile Gln Val Thr Val Ser Asp Pro Tyr His Val Val
            35                  40                  45
Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn
        50                  55                  60
Thr Leu Thr Val Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80
Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85                  90                  95
Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100                 105                 110
Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115                 120                 125
Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130                 135                 140
Thr Gly Asn Ala Asp Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145                 150                 155                 160
Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165                 170                 175
Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly Arg Thr Ser Glu Ala
            180                 185                 190
Pro Glu Leu Leu Pro Gly Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu
        195                 200                 205
Phe Val Val Val Val Cys Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu
    210                 215                 220
Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val
225                 230                 235                 240
Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr
```

41

```
                    245                      250                      255
Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro
            260                      265                      270
Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro
            275                      280                      285
Ala Met Ile Pro Met Gly Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp
        290                      295                      300
Arg His Ser Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg
305                      310                      315                      320
Asp Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile
                325                      330                      335
Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu
            340                      345                      350
Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly
            355                      360                      365
Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp
        370                      375                      380
Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp
385                      390                      395                      400
Glu Glu Trp Asn Arg His Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln
                405                      410                      415
Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro
            420                      425                      430
Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser
            435                      440                      445
Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg
        450                      455                      460
Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro
465                      470                      475                      480
Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp
                485                      490                      495
Asp Ile Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg
            500                      505                      510
Ser Arg Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr
            515                      520                      525
Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu
        530                      535                      540
Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Gly Gln Tyr
545                      550                      555                      560
Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg
                565                      570                      575
Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val
            580                      585                      590
Val
```

<210> 10
<211> 2040
<212> DNA
<213> Rattus norvegicus

<400> 10
```
accgctcacc aggtcagttg tccccggaaa gccgaaggca tgagcttcgc ccaagttctt    60
tttatgggtt agaactcctc cagagcgggg gaaaaaggac ttggaatagg ggcgggacgg   120
agcacgcacc cttctccgcc ttggttctcg ccgcgccccc tactctcggg atacttggga   180
ggggacgcgc gggcaccgtc gctgctagac ggccgcg atg gcg ccg gcg gcc ggc   235
                                            Met Ala Pro Ala Ala Gly
                                            1                     5
gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg   283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
```

42

```
                 10                    15                    20
tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag      331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
         25                    30                    35
gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg      379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
         40                    45                    50
acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc      427
Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
55                    60                    65                    70
gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc      475
Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala
                 75                    80                    85
ttc tct cct gcc agt gtg gac aac cag cta aat gcc cag ttg gca gct      523
Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
                 90                    95                    100
ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc      571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
         105                   110                   115
act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga      619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
         120                   125                   130
gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg      667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135                   140                   145                   150
acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct      715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
                 155                   160                   165
gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag      763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
                 170                   175                   180
ctc atc gtc ctt gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gcg agc      811
Leu Ile Val Leu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser
                 185                   190                   195
ctc ctc ctc ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt cct      859
Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro
         200                   205                   210
cac acc tgc tgc tgc tat gtc cga tgt ccc tgc tgc cca gac aag tgc      907
His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys
215                   220                   225                   230
tgt tgc cct gag gct ctt tat gct gct ggc aaa gca gcc acc tca ggt      955
Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly
                 235                   240                   245
gtc ccg agc atc tat gcc ccc agc atc tat acc cac ctc tca cct gcc      1003
Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala
         250                   255                   260
aag acc cca cca cct ccg cct gcc atg att ccc atg ggc cct ccc tat      1051
Lys Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Pro Tyr
         265                   270                   275
ggg tac cct gga gac ttt gac aga cat agc tca gtt ggt ggc cac agc      1099
Gly Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly Gly His Ser
         280                   285                   290
tcc caa gta ccc ctg ctg cgt gac gtg gat ggc agt gta tct tca gaa      1147
Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val Ser Ser Glu
295                   300                   305                   310
gta cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg      1195
Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met
                 315                   320                   325
agg gtc cta tac tat atg gag aaa gag cta gcc aac ttt gac cct tcc      1243
```

43

```
Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser
            330                 335                 340
cga cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg agt gaa gta    1291
Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val
            345                 350                 355
acc tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc agg gct cct    1339
Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro
    360                 365                 370
gcc ctc acc ccc atc agg gat gag gag tgg aat cgc cac tcc cca cag    1387
Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Gln
375                 380                 385                 390
agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa cca agg ggt    1435
Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly
                    395                 400                 405
ggt tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat gct cta gat    1483
Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp
                410                 415                 420
gat atc aac cgg cct ggc tcc act gaa tca gga cgg tct tct ccc cca    1531
Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro
            425                 430                 435
agt agt gga cgg aga gga cgg gcc tat gca cct cca aga agt cgc agc    1579
Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser
    440                 445                 450
cgg gat gac ctc tat gac ccg gac gat cct agg gac ttg cca cat tcc    1627
Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser
455                 460                 465                 470
cga gat ccc cac tat tat gac gac atc agg tct aga gat cca cgt gct    1675
Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp Pro Arg Ala
                475                 480                 485
gac ccc aga tcc cgt cag cga tcc cga gat cct cgg gat gct ggc ttc    1723
Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp Ala Gly Phe
                490                 495                 500
agg tca agg gac cct cag tat gat ggg cga cta tta gaa gag gct tta    1771
Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu
        505                 510                 515
aag aaa aag ggg tcg ggc gag aga agg agg gtt tac agg gag gaa gaa    1819
Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu
    520                 525                 530
gag gaa gag gag ggc caa tac ccc cca gca cct cca cct tac tca gag    1867
Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu
535                 540                 545                 550
act gac tcg cag gcc tca cgg gag agg agg ctg aaa aag aat ttg gcc    1915
Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala
                555                 560                 565
ctg agt cgg gaa agt tta gtc gtc tga tccacgtttt gtatgtagct          1962
Leu Ser Arg Glu Ser Leu Val Val  *
                570                 575
tttgtacttt tttttaatt ggaatcaata ttgatgaaac ttcaagccta ataaaatgtc  2022
taatcacaaa aaaaaaaa                                                2040
```

<210> 11
<211> 574
<212> PRT
<213> Rattus norvegicus

<400> 11
```
Met Ala Pro Ala Ala Gly Ala Cys Ala Gly Ala Pro Asp Ser His Pro
1               5                   10                  15
Ala Thr Val Val Phe Val Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp
```

44

```
                    20                      25                      30
Pro Ala Ser Ala. Ile Gln Val Thr Val Ser Asp Pro Tyr His Val Val
          35                      40                      45
Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn
          50                      55                      60
Thr Leu Thr Val Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                      70                      75                      80
Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                    85                      90                      95
Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
                    100                     105                     110
Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
                    115                     120                     125
Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
          130                     135                     140
Thr Gly Asn Ala Asp Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145                     150                     155                     160
Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                    165                     170                     175
Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val Val
                    180                     185                     190
Val Val Cys Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys
          195                     200                     205
Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro
210                     215                     220
Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly
225                     230                     235                     240
Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr
                    245                     250                     255
Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile
                    260                     265                     270
Pro Met Gly Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg His Ser
          275                     280                     285
Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp
          290                     295                     300
Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn
305                     310                     315                     320
Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu
                    325                     330                     335
Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu
          340                     345                     350
Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser
          355                     360                     365
Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp
          370                     375                     380
Asn Arg His Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu
385                     390                     395                     400
Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg
                    405                     410                     415
Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser
                    420                     425                     430
Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala
          435                     440                     445
Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro
450                     455                     460
Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg
465                     470                     475                     480
Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp
                    485                     490                     495
```

45

```
Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg
        500                 505                 510
Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg
        515                 520                 525
Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala
        530                 535                 540
Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg
545                 550                 555                 560
Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
                565                 570


<210> 12
<211> 1893
<212> DNA
<213> Rattus norvegicus


<400> 12
accgctcacc aggtcagttg tccccggaaa gccgaaggca tgagcttcgc ccaagttctt      60
tttatgggtt agaactcctc cagagcgggg gaaaaaggac ttggaatagg ggcgggacgg     120
agcacgcacc cttctccgcc ttggttctcg ccgcgccccc tactctcggg atacttggga     180
ggggacgcgc gggcaccgtc gctgctagac ggccgcg atg gcg ccg gcg gcc ggc     235
                                           Met Ala Pro Ala Ala Gly
                                           1               5

gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg     283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
            10                  15                  20

tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag     331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
        25                  30                  35

gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg     379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
    40                  45                  50

acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc     427
Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
55                  60                  65                  70

gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc     475
Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala
                75                  80                  85

ttc tct cct gcc agt gtg gac aac cag cta aat gcc cag ttg gca gct     523
Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
                90                  95                  100

ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc     571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
            105                 110                 115

act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga     619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
    120                 125                 130

gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg     667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135                 140                 145                 150

acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct     715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
                155                 160                 165

gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag     763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
            170                 175                 180

ctc atc gtc ctt gtt tat gct gct ggc aaa gca gcc acc tca ggt gtc     811
Leu Ile Val Leu Val Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val
            185                 190                 195
```

46

```
ccg agc atc tat gcc ccc agc atc tat acc cac ctc tca cct gcc aag      859
Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys
    200             205                 210

acc cca cca cct ccg cct gcc atg att ccc atg ggc cct ccc tat ggg      907
Thr Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Pro Tyr Gly
215             220                 225                 230

tac cct gga gac ttt gac aga cat agc tca gtt ggt ggc cac agc tcc      955
Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly Gly His Ser Ser
            235                 240                 245

caa gta ccc ctg ctg cgt gac gtg gat ggc agt gta tct tca gaa gta     1003
Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val Ser Ser Glu Val
            250                 255                 260

cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg agg     1051
Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg
            265                 270                 275

gtc cta tac tat atg gag aaa gag cta gcc aac ttt gac cct tcc cga     1099
Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg
            280                 285                 290

cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg agt gaa gta acc     1147
Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr
295                 300                 305                 310

tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc agg gct cct gcc     1195
Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala
            315                 320                 325

ctc acc ccc atc agg gat gag gag tgg aat cgc cac tcc cca cag agt     1243
Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Gln Ser
            330                 335                 340

ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa cca agg ggt ggt     1291
Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly
            345                 350                 355

tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat gct cta gat gat,    1339
Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp
360                 365                 370

atc aac cgg cct ggc tcc act gaa tca gga cgg tct tct ccc cca agt     1387
Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser
375                 380                 385                 390

agt gga cgg aga gga cgg gcc tat gca cct cca aga agt cgc agc cgg     1435
Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg
            395                 400                 405

gat gac ctc tat gac ccg gac gat cct agg gac ttg cca cat tcc cga     1483
Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg
            410                 415                 420

gat ccc cac tat tat gac gac atc agg tct aga gat cca cgt gct gac     1531
Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp Pro Arg Ala Asp
            425                 430                 435

ccc aga tcc cgt cag cga tcc cga gat cct cgg gat gct ggc ttc agg     1579
Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp Ala Gly Phe Arg
            440                 445                 450

tca agg gac cct cag tat gat ggg cga cta tta gaa gag gct tta aag     1627
Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys
455                 460                 465                 470

aaa aag ggg tcg ggc gag aga agg agg gtt tac agg gag gaa gaa gag     1675
Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu
            475                 480                 485

gaa gag gag ggc caa tac ccc cca gca cct cca cct tac tca gag act     1723
Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr
            490                 495                 500

gac tcg cag gcc tca cgg gag agg agg ctg aaa aag aat ttg gcc ctg     1771
Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu
```

47

```
              505                   510                  515
agt cgg gaa agt tta gtc gtc tga tccacgtttt gtatgtagct tttgtacttt    1825
Ser Arg Glu Ser Leu Val Val  *
    520                   525
tttttaatt ggaatcaata ttgatgaaac ttcaagccta ataaatgtc taatcacaaa   1885
aaaaaaaa                                                            1893


<210> 13
<211> 525
<212> PRT
<213> Rattus norvegicus

<400> 13
Met Ala Pro Ala Ala Gly Ala Cys Ala Gly Ala Pro Asp Ser His Pro
1               5                   10                  15
Ala Thr Val Val Phe Val Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp
            20                  25                  30
Pro Ala Ser Ala Ile Gln Val Thr Val Ser Asp Pro Tyr His Val Val
        35                  40                  45
Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn
    50                  55                  60
Thr Leu Thr Val Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80
Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
            85                  90                  95
Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100                 105                 110
Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
            115                 120                 125
Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
            130                 135                 140
Thr Gly Asn Ala Asp Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145                 150                 155                 160
Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165                 170                 175
Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val Tyr Ala Ala Gly Lys
            180                 185                 190
Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr
        195                 200                 205
His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro
    210                 215                 220
Met Gly Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg His Ser Ser
225                 230                 235                 240
Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly
                245                 250                 255
Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln
            260                 265                 270
Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala
        275                 280                 285
Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg
    290                 295                 300
Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg
305                 310                 315                 320
Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn
            325                 330                 335
Arg His Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln
            340                 345                 350
Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser
        355                 360                 365
```

48

```
Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly
    370                 375                 380
Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro
385                 390                 395                 400
Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg
                405                 410                 415
Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser
            420                 425                 430
Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro
            435                 440                 445
Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu
    450                 455                 460
Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val
465                 470                 475                 480
Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro
                485                 490                 495
Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu
            500                 505                 510
Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
        515                 520                 525
```

<210> 14
<211> 1886
<212> DNA
<213> Mus musculus

<400> 14

```
gcaccgtcgc tgctagacgg ccgcg atg gcg ccg gcg gcc agc gcg tgt gct      52
                            Met Ala Pro Ala Ala Ser Ala Cys Ala
                            1               5
ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt     100
Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
10              15                  20                  25
ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg     148
Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                30                  35                  40
cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac     196
Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
            45                  50                  55
tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg     244
Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
        60                  65                  70
aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct     292
Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
    75                  80                  85
gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc     340
Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
90                  95                  100                 105
ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg     388
Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                110                 115                 120
gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac     436
Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
                125                 130                 135
cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag     484
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
                140                 145                 150
cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca     532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
```

49

```
                 155                        160                        165
     gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc    580
     Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
     170                        175                        180                        185
     ctt ggc agg acc tca gaa gcc cct gag ctc cta cct ggt ttt cgg gcg    628
     Leu Gly Arg Thr Ser Glu Ala Pro Glu Leu Leu Pro Gly Phe Arg Ala
                           190                        195                        200
     ggg ccc ttg gaa gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gca agc    676
     Gly Pro Leu Glu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser
                           205                        210                        215
     ctc ctc ttc ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt ccc    724
     Leu Leu Phe Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro
                           220                        225                        230
     cac acc tgc tgc tgc tat gtc aga tgt ccc tgc tgc cca gac aag tgc    772
     His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys
                           235                        240                        245
     tgt tgc cct gag gcc ctt tat gct gct ggc aaa gca gcc acc tca ggt    820
     Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly
     250                        255                        260                        265
     gtg cca agc atc tat gcc ccc agc atc tat acc cac ctc tct cct gcc    868
     Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala
                           270                        275                        280
     aag act ccg cca cct ccg cct gcc atg att ccc atg cgt cct ccc tat    916
     Lys Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr
                           285                        290                        295
     ggg tac cct gga gac ttt gac agg acc agc tca gtt ggt ggc cac agc    964
     Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser
                           300                        305                        310
     tcc cag gtg ccc ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa    1012
     Ser Gln Val Pro Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu
                           315                        320                        325
     gta cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg    1060
     Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met
     330                        335                        340                        345
     agg gtc cta tac tat atg gag aag gag cta gcc aac ttc gat cct tcc    1108
     Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser
                           350                        355                        360
     cgg cct ggc cct ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta    1156
     Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val
                           365                        370                        375
     acc tcc ctc cat gaa gat gac tgg cga tct cgg cct tcc agg gct cct    1204
     Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro
                           380                        385                        390
     gcc ctc aca ccc atc agg gat gag gag tgg aat cgc cac tcc cct cgg    1252
     Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg
                           395                        400                        405
     agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt    1300
     Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly
     410                        415                        420                        425
     ggt tgg ggg tct ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat    1348
     Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp
                           430                        435                        440
     gac atc aac cgg cct ggc tcc act gaa tca gga agg tct tct ccc cca    1396
     Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro
                           445                        450                        455
     agt agt gga cgg aga ggg cgg gcc tat gca cct ccg aga agt cgc agc    1444
     Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser
                           460                        465                        470
     cgg gat gac ctc tat gac ccc gac gat cct aga gac ttg cca cat tcc    1492
```

50

```
      Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser
          475                 480                 485
      cga gat ccc cac tat tat gat gat ttg agg tct agg gat cca cgt gct    1540
      Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala
      490                 495                 500                 505
      gac ccc aga tcc cgt cag cga tcc cac gat cct cgg gat gct ggc ttc    1588
      Asp Pro Arg Ser Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe
                      510                 515                 520
      agg tca cgg gac cct cag tat gat ggg cga ctc tta gaa gag gct tta    1636
      Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu
                  525                 530                 535
      aag aaa aaa ggg gct ggg gag aga aga cgc gtt tac agg gag gaa gaa    1684
      Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu
              540                 545                 550
      gaa gaa gaa gag gag ggc cac tat ccc cca gca cct ccg cct tac tct    1732
      Glu Glu Glu Glu Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser
      555                 560                 565
      gag act gac tcg cag gcc tcg agg gag cgg agg atg aaa aag aat ttg    1780
      Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu
      570                 575                 580                 585
      gcc ctg agt cgg gaa agt tta gtc gtc tga tcccacgttt tgttatgtag      1830
      Ala Leu Ser Arg Glu Ser Leu Val Val  *
                      590                 595
      cttttatact tttttaattg gaatattgat gaaactcttc accaagccta ataaaa      1886
```

<210> 15
<211> 1829
<212> DNA
<213> Mus musculus

<400> 15
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      gcaccgtcgc tgctagacgg ccgcg atg gcg ccg gcg gcc agc gcg tgt gct    52
                              Met Ala Pro Ala Ala Ser Ala Cys Ala
                              1                 5
      ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt    100
      Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
      10                  15                  20                  25
      ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg    148
      Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                      30                  35                  40
      cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac    196
      Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
                  45                  50                  55
      tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg    244
      Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
              60                  65                  70
      aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct    292
      Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
      75                  80                  85
      gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc    340
      Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
      90                  95                  100                 105
      ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg    388
      Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                      110                 115                 120
      gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac    436
      Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
                  125                 130                 135
      cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag    484
```

51

```
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
        140                     145                 150
cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca    532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
        155                     160                 165
gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc    580
Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
170                     175                 180                 185
ctt gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gca agc ctc ctc ttc    628
Leu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser Leu Leu Phe
                190                     195                 200
ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt ccc cac acc tgc    676
Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys
                205                     210                 215
tgc tgc tat gtc aga tgt ccc tgc tgc cca gac aag tgc tgt tgc cct    724
Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro
                220                     225                 230
gag gcc ctt tat gct gct ggc aaa gca gcc acc tca ggt gtg cca agc    772
Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser
        235                     240                 245
atc tat gcc ccc agc atc tat acc cac ctc tct cct gcc aag act ccg    820
Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro
250                     255                 260                 265
cca cct ccg cct gcc atg att ccc atg cgt cct ccc tat ggg tac cct    868
Pro Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro
                270                     275                 280
gga gac ttt gac agg acc agc tca gtt ggt ggc cac agc tcc cag gtg    916
Gly Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val
                285                     290                 295
ccc ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa gta cga agt    964
Pro Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser
                300                     305                 310
ggc tac agg atc cag gct aac cag caa gat gac tcc atg agg gtc cta    1012
Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu
        315                     320                 325
tac tat atg gag aag gag cta gcc aac ttc gat cct tcc cgg cct ggc    1060
Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly
330                     335                 340                 345
cct ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta acc tcc ctc    1108
Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu
                350                     355                 360
cat gaa gat gac tgg cga tct cgg cct tcc agg gct cct gcc ctc aca    1156
His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr
                365                     370                 375
ccc atc agg gat gag gag tgg aat cgc cac tcc cct cgg agt ccc aga    1204
Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg
        380                     385                 390
aca tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt ggt tgg ggg    1252
Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly
        395                     400                 405
tct ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat gac atc aac    1300
Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn
410                     415                 420                 425
cgg cct ggc tcc act gaa tca gga agg tct tct ccc cca agt agt gga    1348
Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly
                430                     435                 440
cgg aga ggg cgg gcc tat gca cct ccg aga agt cgc agc cgg gat gac    1396
Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp
        445                     450                 455
```

52

```
ctc tat gac ccc gac gat cct aga gac ttg cca cat tcc cga gat ccc      1444
Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro
        460                 465                 470
cac tat tat gat gat ttg agg tct agg gat cca cgt gct gac ccc aga      1492
His Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg
    475                 480                 485
tcc cgt cag cga tcc cac gat cct cgg gat gct ggc ttc agg tca cgg      1540
Ser Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg
490                 495                 500                 505
gac cct cag tat gat ggg cga ctc tta gaa gag gct tta aag aaa aaa      1588
Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys
                510                 515                 520
ggg gct ggg gag aga aga cgc gtt tac agg gag gaa gaa gaa gaa gaa      1636
Gly Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu
                525                 530                 535
gag gag ggc cac tat ccc cca gca cct ccg cct tac tct gag act gac      1684
Glu Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp
        540                 545                 550
tcg cag gcc tcg agg gag cgg agg atg aaa aag aat ttg gcc ctg agt      1732
Ser Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser
    555                 560                 565
cgg gaa agt tta gtc gtc tga tcccacgttt tgttatgtag cttttatact        1783
Arg Glu Ser Leu Val Val  *
570                 575
tttttaattg gaatattgat gaaactcttc accaagccta ataaaa                  1829


<210> 16
<211> 1682
<212> DNA
<213> Mus musculus


<400> 16
gcaccgtcgc tgctagacgg ccgcg atg gcg ccg gcg gcc agc gcg tgt gct    52
                            Met Ala Pro Ala Ala Ser Ala Cys Ala
                            1                   5
ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt    100
Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
10                  15                  20                  25
ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg    148
Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                30                  35                  40
cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac    196
Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
                45                  50                  55
tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg    244
Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
        60                  65                  70
aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct    292
Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
    75                  80                  85
gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc    340
Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
90                  95                  100                 105
ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg    388
Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                110                 115                 120
gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac    436
Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
                125                 130                 135
```

53

```
cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag      484
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
        140                 145                 150
cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca      532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
        155                 160                 165
gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc      580
Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
170                 175                 180                 185
ctt gtt tat gct gct ggc aaa gca gcc acc tca ggt gtg cca agc atc      628
Leu Val Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile
                190                 195                 200
tat gcc ccc agc atc tat acc cac ctc tct cct gcc aag act ccg cca      676
Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro
                205                 210                 215
cct ccg cct gcc atg att ccc atg cgt cct ccc tat ggg tac cct gga      724
Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly
        220                 225                 230
gac ttt gac agg acc agc tca gtt ggt ggc cac agc tcc cag gtg ccc      772
Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val Pro
        235                 240                 245
ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa gta cga agt ggc      820
Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly
250                 255                 260                 265
tac agg atc cag gct aac cag caa gat gac tcc atg agg gtc cta tac      868
Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr
                270                 275                 280
tat atg gag aag gag cta gcc aac ttc gat cct tcc cgg cct ggc cct      916
Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro
                285                 290                 295
ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta acc tcc ctc cat      964
Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His
        300                 305                 310
gaa gat gac tgg cga tct cgg cct tcc agg gct cct gcc ctc aca ccc     1012
Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro
        315                 320                 325
atc agg gat gag gag tgg aat cgc cac tcc cct cgg agt ccc aga aca     1060
Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg Thr
330                 335                 340                 345
tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt ggt tgg ggg tct     1108
Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser
                350                 355                 360
ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat gac atc aac cgg     1156
Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg
        365                 370                 375
cct ggc tcc act gaa tca gga agg tct tct ccc cca agt agt gga cgg     1204
Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg
        380                 385                 390
aga ggg cgg gcc tat gca cct ccg aga agt cgc agc cgg gat gac ctc     1252
Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu
        395                 400                 405
tat gac ccc gac gat cct aga gac ttg cca cat tcc cga gat ccc cac     1300
Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His
410                 415                 420                 425
tat tat gat gat ttg agg tct agg gat cca cgt gct gac ccc aga tcc     1348
Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser
                430          ·      435                 440
cgt cag cga tcc cac gat cct cgg gat gct ggc ttc agg tca cgg gac     1396
Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp
```

54

```
                    445                      450                      455
cct cag tat gat ggg cga ctc tta gaa gag gct tta aag aaa aaa ggg    1444
Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly
            460                      465                      470
gct ggg gag aga aga cgc gtt tac agg gag gaa gaa gaa gaa gaa gag    1492
Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu
            475                      480                      485
gag ggc cac tat ccc cca gca cct ccg cct tac tct gag act gac tcg    1540
Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
490                      495                      500                      505
cag gcc tcg agg gag cgg agg atg aaa aag aat ttg gcc ctg agt cgg    1588
Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser Arg
                    510                      515                      520
gaa agt tta gtc gtc tga tcccacgttt tgttatgtag cttttatact          1636
Glu Ser Leu Val Val  *
                525
tttttaattg gaatattgat gaaactcttc accaagccta ataaaa               1682


<210> 17
<211> 594
<212> PRT
<213> Mus musculus


<400> 17
Met Ala Pro Ala Ala Ser Ala Cys Ala Gly Ala Pro Gly Ser His Pro
1               5                   10                  15
Ala Thr Thr Ile Phe Val Cys Leu Phe Leu Ile Ile Tyr Cys Pro Asp
                20                  25                  30
Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
            35                  40                  45
Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
    50                  55                  60
Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80
Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85                  90                  95
Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100                 105                 110
Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
            115                 120                 125
Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130                 135                 140
Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145                 150                 155                 160
Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165                 170                 175
Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly Arg Thr Ser Glu Ala
            180                 185                 190
Pro Glu Leu Leu Pro Gly Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu
            195                 200                 205
Phe Val Val Val Val Cys Leu Ala Ser Leu Leu Phe Phe Leu Leu Leu
    210                 215                 220
Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val
225                 230                 235                 240
Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr
                245                 250                 255
Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro
            260                 265                 270
Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro
```

55

```
          275                    280                    285
Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp
    290                    295                    300
Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg
305                    310                    315                    320
Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile
                325        .              330                    335
Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu
            340                    345                    350
Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly
            355                    360                    365
Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp
    370                    375                    380
Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp
385                    390                    395                    400
Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln
                405                    410                    415
Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro
            420                    425                    430
Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser
            435                    440                    445
Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg
    450                    455                    460
Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro
465                    470                    475                    480
Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp
                485                    490                    495
Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg
            500                    505                    510
Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr
            515                    520                    525
Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu
    530                    535                    540
Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Glu Gly His
545                    550                    555                    560
Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser
                565                    570                    575
Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu
            580                    585                    590
Val Val
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<210> 18
<211> 575
<212> PRT
<213> Mus musculus

<400> 18
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Met Ala Pro Ala Ala Ser Ala Cys Ala Gly Ala Pro Gly Ser His Pro
1                   5                   10                  15
Ala Thr Thr Ile Phe Val Cys Leu Phe Leu Ile Ile Tyr Cys Pro Asp
                20                  25                  30
Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
            35                  40                  45
Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
        50                  55                  60
Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80
Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85                  90                  95
```

56

```
Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100                     105                 110
Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
            115                     120                 125
Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
            130                     135                 140
Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145                     150                     155                 160
Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165                     170                 175
Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val Val
            180                     185                 190
Val Val Cys Leu Ala Ser Leu Leu Phe Phe Leu Leu Leu Gly Ile Cys
            195                     200                 205
Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro
210                     215                     220
Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly
225                     230                     235                 240
Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr
                245                     250                 255
Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile
                260                     265                 270
Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser
            275                     280                 285
Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Glu Val Asp
            290                     295                 300
Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn
305                     310                     315                 320
Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu
                325                     330                 335
Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu
                340                     345                 350
Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser
            355                     360                 365
Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp
            370                     375                 380
Asn Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu
385                     390                     395                 400
Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg
                405                     410                 415
Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser
                420                     425                 430
Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala
            435                     440                 445
Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro
            450                     455                 460
Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg
465                     470                     475                 480
Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser His Asp
                485                     490                 495
Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg
            500                     505                 510
Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg
            515                     520                 525
Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly His Tyr Pro Pro
            530                     535                 540
Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg
545                     550                     555                 560
Arg Met Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
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57

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<210> 19
<211> 526
<212> PRT
<213> Mus musculus

<400> 19
Met Ala Pro Ala Ala Ser Ala Cys Ala Gly Ala Pro Gly Ser His Pro
1               5                   10                  15
Ala Thr Thr Ile Phe Val Cys Leu Phe Leu Ile Ile Tyr Cys Pro Asp
            20                  25                  30
Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
        35                  40                  45
Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
    50                  55                  60
Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80
Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85                  90                  95
Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100                 105                 110
Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115                 120                 125
Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130                 135                 140
Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145                 150                 155                 160
Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165                 170                 175
Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val Tyr Ala Ala Gly Lys
            180                 185                 190
Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr
            195                 200                 205
His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro
    210             215                 220
Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser Ser
225                 230                 235                 240
Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Glu Val Asp Gly
                245                 250                 255
Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln
            260                 265                 270
Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala
        275                 280                 285
Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg
        290                 295                 300
Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg
305                 310                 315                 320
Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn
            325                 330                 335
Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln
        340                 345                 350
Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser
        355                 360                 365
Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly
    370                 375                 380
Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro
385                 390                 395                 400
Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg
```

```
                            405                    410                    415
Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg Ser
            420                    425                    430
Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser His Asp Pro
            435                    440                    445
Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu
        450                    455                    460
Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg Val
465                    470                    475                    480
Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly His Tyr Pro Pro Ala
            485                    490                    495
Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg
        500                    505                    510
Met Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
        515                    520                    525
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<210> 20
<211> 18
<212> DNA
<213> Homo Sapiens

<220>
<221> misc_binding
<222> 1..18
<223> sequencing oligonucleotide PrimerPU

<400> 20
tgtaaaacga cggccagt   18

<210> 21
<211> 18
<212> DNA
<213> Homo Sapiens

<220>
<221> misc_binding
<222> 1..18
<223> sequencing oligonucleotide PrimerRP

<400> 21
caggaaacag ctatgacc   18

<210> 22
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide sense primer

<400> 22
ctacaacccc tacgtcgagt   20

<210> 23
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> oligonucleotide anti sense primer

<400> 23
aggcggagat cgccagtcgt   20

<210> 24
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide sense primer

<400> 24
cctttgtcca cgtcgtttac gctc   24

<210> 25
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide anti sense primer

<400> 25
tcacagcgtt gccctgcttg   20

<210> 26
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide sense primer

<400> 26
ttactgctcc gtggtctcag c   21

<210> 27
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide anti sense primer

<400> 27
agctactcct gtcaacgtct cc   22

<210> 28
<211> 167
<212> PRT
<213> Bos taurus

<400> 28
Met Arg Cys Gly Pro Leu Tyr Arg Phe Leu Trp Leu Trp Pro Tyr Leu
1   5   10   15
Ser Tyr Val Glu Ala Val Pro Ile Arg Lys Val Gln Asp Asp Thr Lys
            20   25   30

60

```
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr
        35              40                  45
Gln Ser Val Ser Ser Lys Gln Arg Val Thr Gly Leu Asp Phe Ile Pro
    50              55                  60
Gly Leu His Pro Leu Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala
65              70                  75                  80
Ile Tyr Gln Gln Ile Leu Thr Ser Leu Pro Ser Arg Asn Val Val Gln
            85                  90                  95
Ile Ser Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala
        100             105                 110
Ala Ser Lys Ser Cys Pro Leu Pro Gln Val Arg Ala Leu Glu Ser Leu
        115             120                 125
Glu Ser Leu Gly Val Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val
    130             135                 140
Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu Arg Gln
145             150                 155                 160
Leu Asp Leu Ser Pro Gly Cys
                165


<210> 29
<211> 146
<212> PRT
<213> Canis familiaris


<400> 29
Val Pro Ile Arg Lys Val Gln Asp Asp Thr Lys Thr Leu Ile Lys Thr
1           5                   10                  15
Ile Val Ala Arg Ile Asn Asp Ile Ser His Thr Gln Ser Val Ser Ser
            20                  25                  30
Lys Gln Arg Val Ala Gly Leu Asp Phe Ile Pro Gly Leu Gln Pro Val
        35                  40                  45
Leu Ser Leu Ser Arg Met Asp Gln Thr Leu Ala Ile Tyr Gln Gln Ile
    50                  55                  60
Leu Asn Ser Leu His Ser Arg Asn Val Val Gln Ile Ser Asn Asp Leu
65                  70                  75                  80
Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala Ser Ser Lys Ser Cys
            85                  90                  95
Pro Leu Pro Arg Ala Arg Gly Leu Glu Thr Phe Glu Ser Leu Gly Gly
            100                 105                 110
Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val Val Ala Leu Ser Arg
    115                 120                 125
Leu Gln Ala Ala Leu Gln Asp Met Leu Arg Arg Leu Asp Leu Ser Pro
    130                 135                 140
Gly Cys
145


<210> 30
<211> 163
<212> PRT
<213> Gallus gallus


<400> 30
Met Cys Trp Arg Pro Leu Cys Arg Leu Trp Ser Tyr Leu Val Tyr Val
1           5                   10                  15
Gln Ala Val Pro Cys Gln Ile Phe Gln Asp Asp Thr Lys Thr Leu Ile
            20                  25                  30
Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr Ser Val Ser
        35                  40                  45
Ala Lys Gln Arg Val Thr Gly Leu Asp Phe Ile Pro Gly Leu His Pro
```

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```
        50                    55                    60
Ile Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala Val Tyr Gln Gln
65                    70                    75                    80
Val Leu Thr Ser Leu Pro Ser Gln Asn Val Leu Gln Ile Ala Asn Asp
                    85                    90                    95
Leu Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala Phe Ser Lys Ser
                100                   105                   110
Cys Ser Leu Pro Gln Thr Ser Gly Leu Gln Lys Pro Glu Ser Leu Asp
                115                   120                   125
Gly Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val Val Ala Leu Ser
                130                   135                   140
Arg Leu Gln Gly Ser Leu Gln Asp Ile Leu Gln Gln Leu Asp Ile Ser
145                   150                   155                   160
Pro Glu Cys


<210> 31
<211> 146
<212> PRT
<213> Gorilla gorilla

<400> 31
Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys Thr Leu Ile Lys Thr
1                   5                     10                    15
Ile Val Thr Arg Ile Ser Asp Ile Ser His Thr Gln Ser Val Ser Ser
                20                    25                    30
Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro Gly Leu His Pro Ile
                35                    40                    45
Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala Val Tyr Gln Gln Ile
                50                    55                    60
Leu Thr Ser Met Pro Ser Arg Asn Met Ile Gln Ile Ser Asn Asp Leu
65                    70                    75                    80
Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala Phe Ser Lys Ser Cys
                85                    90                    95
His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu Asp Ser Leu Gly Gly
                100                   105                   110
Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val Val Ala Leu Ser Arg
                115                   120                   125
Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln Leu Asp Leu Ser Pro
                130                   135                   140
Gly Cys
145


<210> 32
<211> 167
<212> PRT
<213> Homo sapiens

<400> 32
Met His Trp Gly Thr Leu Cys Gly Phe Leu Trp Leu Trp Pro Tyr Leu
1                   5                     10                    15
Phe Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys
                20                    25                    30
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr
                35                    40                    45
Gln Ser Val Ser Ser Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro
                50                    55                    60
Gly Leu His Pro Ile Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala
65                    70                    75                    80
Val Tyr Gln Gln Ile Leu Thr Ser Met Pro Ser Arg Asn Val Ile Gln
```

62

```
                    85                      90                      95
Ile Ser Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala
            100                     105                     110
Phe Ser Lys Ser Cys His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu
            115                     120                     125
Asp Ser Leu Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val
        130                     135                     140
Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln
145                     150                     155                     160
Leu Asp Leu Ser Pro Gly Cys
                    165


<210> 33
<211> 167
<212> PRT
<213> Macaca mulatta


<400> 33
Met Tyr Trp Arg Thr Leu Trp Gly Phe Leu Trp Leu Trp Pro Tyr Leu
1               5                   10                  15
Phe Tyr Ile Gln Ala Val Pro Ile Gln Lys Val Gln Ser Asp Thr Lys
            20                      25                      30
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr
            35                      40                      45
Gln Ser Val Ser Ser Lys Gln Arg Val Thr Gly Leu Asp Phe Ile Pro
        50                      55                      60
Gly Leu His Pro Val Leu Thr Leu Ser Gln Met Asp Gln Thr Leu Ala
65                      70                      75                      80
Ile Tyr Gln Gln Ile Leu Ile Asn Leu Pro Ser Arg Asn Val Ile Gln
                    85                      90                      95
Ile Ser Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala
            100                     105                     110
Phe Ser Lys Ser Cys His Leu Pro Leu Ala Ser Gly Leu Glu Thr Leu
            115                     120                     125
Glu Ser Leu Gly Asp Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val
        130                     135                     140
Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln
145                     150                     155                     160
Leu Asp Leu Ser Pro Gly Cys
                    165


<210> 34
<211> 167
<212> PRT
<213> Mus musculus


<400> 34
Met Cys Trp Arg Pro Leu Cys Arg Phe Leu Trp Leu Trp Ser Tyr Leu
1               5                   10                  15
Ser Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys
            20                      25                      30
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr
             35                     40                      45
Gln Ser Val Ser Ala Lys Gln Arg Val Thr Gly Leu Asp Phe Ile Pro
        50                      55                      60
Gly Leu His Pro Ile Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala
65                      70                      75                      80
Val Tyr Gln Gln Val Leu Thr Ser Leu Pro Ser Gln Asn Val Leu Gln
                    85                      90                      95


                              63
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Ile Ala Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala
            100   105   110
Phe Ser Lys Ser Cys Ser Leu Pro Gln Thr Ser Gly Leu Gln Lys Pro
            115   120   125
Glu Ser Leu Asp Gly Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val
            130   135   140
Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Ile Leu Gln Gln
145   150   155   160
Leu Asp Val Ser Pro Glu Cys
                    165

<210> 35
<211> 146
<212> PRT
<213> Ovus aries

<400> 35
Val Pro Ile Arg Lys Val Gln Asp Asp Thr Lys Thr Leu Ile Lys Thr
1   5   10   15
Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr Gln Ser Val Ser Ser
            20   25   30
Lys Gln Arg Val Thr Gly Leu Asp Phe Ile Pro Gly Leu His Pro Leu
            35   40   45
Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala Ile Tyr Gln Gln Ile
            50   55   60
Leu Ala Ser Leu Pro Ser Arg Asn Val Ile Gln Ile Ser Asn Asp Leu
65   70   75   80
Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala Ala Ser Lys Ser Cys
                    85   90   95
Pro Leu Pro Gln Val Arg Ala Leu Glu Ser Leu Glu Ser Leu Gly Val
            100   105   110
Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val Val Ala Leu Ser Arg
            115   120   125
Leu Gln Gly Ser Leu Gln Asp Met Leu Arg Gln Leu Asp Leu Ser Pro
            130   135   140
Gly Cys
145

<210> 36
<211> 146
<212> PRT
<213> Pan troglodytes

<400> 36
Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys Thr Leu Ile Lys Thr
1   5   10   15
Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr Gln Ser Val Ser Ser
            20   25   30
Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro Gly Leu His Pro Ile
            35   40   45
Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala Val Tyr Gln Gln Ile
            50   55   60
Leu Thr Ser Met Pro Ser Arg Asn Met Ile Gln Ile Ser Asn Asp Leu
65   70   75   80
Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala Phe Ser Lys Ser Cys
                    85   90   95
His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu Asp Ser Leu Gly Gly
            100   105   110
Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val Val Ala Leu Ser Arg

64

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                115                      120                      125
Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln Leu Asp Leu Ser Pro
        130                  135                  140
Gly Cys
145


<210> 37
<211> 146
<212> PRT
<213> Pongo pygmaeus


<400> 37
Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys Thr Leu Ile Lys Thr
1               5                   10                  15
Val Ile Thr Arg Ile Asn Asp Ile Ser His Thr Gln Ser Val Ser Ser
            20                  25                  30
Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro Gly Leu His Pro Ile
        35                  40                  45
Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala Val Tyr Gln Gln Ile
        50                  55                  60
Leu Thr Ser Met Pro Ser Arg Asn Val Ile Gln Ile Ser Asn Asp Leu
65                  70                  75                  80
Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala Phe Ser Lys Ser Cys
                85                  90                  95
His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu Asp Arg Leu Gly Gly
            100                 105                 110
Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val Val Ala Leu Ser Arg
        115                 120                 125
Leu Gln Arg Ser Leu Gln Asp Met Leu Trp Gln Leu Asp Leu Ser Pro
        130                 135                 140
Gly Cys
145


<210> 38
<211> 167
<212> PRT
<213> Rattus norvegicus


<400> 38
Met Cys Trp Arg Pro Leu Cys Arg Phe Leu Trp Leu Trp Ser Tyr Leu
1               5                   10                  15
Ser Tyr Val Gln Ala Val Pro Ile His Lys Val Gln Asp Asp Thr Lys
            20                  25                  30
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr
        35                  40                  45
Gln Ser Val Ser Ala Arg Gln Arg Val Thr Gly Leu Asp Phe Ile Pro
        50                  55                  60
Gly Leu His Pro Ile Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala
65                  70                  75                  80
Val Tyr Gln Gln Ile Leu Thr Ser Leu Pro Ser Gln Asn Val Leu Gln
                85                  90                  95
Ile Ala His Asp Leu Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala
                100                 105                 110
Phe Ser Lys Ser Cys Ser Leu Pro Gln Thr Arg Gly Leu Gln Lys Pro
        115                 120                 125
Glu Ser Leu Asp Gly Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val
        130                 135                 140
Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Ile Leu Gln Gln
145                 150                 155                 160
```

65

Leu Asp Leu Ser Pro Glu Cys
                165

<210> 39
<211> 167
<212> PRT
<213> Sus scrofa

<400> 39
Met Arg Cys Gly Pro Leu Cys Arg Phe Leu Trp Leu Trp Pro Tyr Leu
1   5   10   15
Ser Tyr Val Glu Ala Val Pro Ile Trp Arg Val Gln Asp Asp Thr Lys
            20   25   30
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Ser Asp Ile Ser His Met
            35   40   45
Gln Ser Val Ser Ser Lys Gln Arg Val Thr Gly Leu Asp Phe Ile Pro
        50   55   60
Gly Leu His Pro Val Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala
65   70   75   80
Ile Tyr Gln Gln Ile Leu Thr Ser Leu Pro Ser Arg Asn Val Ile Gln
                85   90   95
Ile Ser Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala
            100   105   110
Ser Ser Lys Ser Cys Pro Leu Pro Gln Ala Arg Ala Leu Glu Thr Leu
            115   120   125
Glu Ser Leu Gly Gly Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val
        130   135   140
Val Ala Leu Ser Arg Leu Gln Gly Ala Leu Gln Asp Met Leu Arg Gln
145   150   155   160
Leu Asp Leu Ser Pro Gly Cys
                165

<210> 40
<211> 4
<212> PRT
<213> Homo sapiens

<400> 40
Glu Thr Leu Asp
1

<210> 41
<211> 4
<212> PRT
<213> Mus musculus

<400> 41
Gln Lys Pro Glu
1

<210> 42
<211> 6
<212> PRT
<213> Homo sapiens

<400> 42
Leu Asp Ser Leu Gly Gly
1   5

<210> 43
<211> 4
<212> PRT
<213> Homo sapiens

<400> 43
Glu Lys Leu Glu
1

<210> 44
<211> 4
<212> PRT
<213> Homo sapiens

<400> 44
Glu Lys Pro Glu
1

<210> 45
<211> 4
<212> PRT
<213> Homo sapiens

<400> 45
Glu Lys Pro Asp
1

<210> 46
<211> 5
<212> PRT
<213> Homo sapiens

<400> 46
Thr Pro Asp Ser Leu
1   5

<210> 47
<211> 9
<212> PRT
<213> Homo sapiens

<400> 47
Gly Leu Gln Thr Leu Asp Ser Leu Gly
1   5

<210> 48
<211> 5
<212> PRT
<213> Homo sapiens

<400> 48
Gly Gly Val Leu Glu
1   5

<210> 49
<211> 6
<212> PRT
<213> Homo sapiens

<400> 49
Thr Pro Asp Ser Leu Gly
1   5

<210> 50
<211> 9
<212> PRT
<213> Homo sapiens

<400> 50
Ser Leu Gly Gly Val Leu Glu Ala Ser
1   5

<210> 51
<211> 6
<212> PRT
<213> Homo sapiens

<400> 51
Pro Glu Ser Leu Gly Gly
1   5

<210> 52
<211> 6
<212> PRT
<213> Homo sapiens

<400> 52
Pro Asp Ser Leu Gly Gly
1   5

<210> 53
<211> 7
<212> PRT
<213> Homo sapiens

<400> 53
Leu Gly Gly Val Leu Glu Ala
1   5

<210> 54
<211> 22
<212> PRT
<213> Homo sapiens

<400> 54
Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala Phe Ser Lys Ser Cys
1   5   10   15
His Leu Pro Trp Ala Ser
            20

<210> 55
<211> 22
<212> PRT
<213> Homo sapiens

<400> 55
Leu Leu His Val Leu Ala Phe Ser Lys Ser Cys His Leu Pro Trp Ala
1   5   10   15

Ser Gly Leu Glu Thr Leu
        20

<210> 56
<211> 22
<212> PRT
<213> Homo sapiens

<400> 56
Ala Phe Ser Lys Ser Cys His Leu Pro Trp Ala Ser Gly Leu Glu Thr
1   5   10   15
Leu Asp Ser Leu Gly Gly
            20

<210> 57
<211> 22
<212> PRT
<213> Homo sapiens

<400> 57
Cys His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu Asp Ser Leu Gly
1   5   10   15
Gly Val Leu Glu Ala Ser
            20

<210> 58
<211> 18
<212> PRT
<213> Homo sapiens

<400> 58
Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu Asp Ser Leu Gly Gly Val
1   5   10   15
Leu Glu

<210> 59
<211> 14
<212> PRT
<213> Homo sapiens

<400> 59
Trp Ala Ser Gly Leu Glu Thr Leu Asp Ser Leu Gly Gly Val
1   5   10

<210> 60
<211> 21
<212> PRT
<213> Homo sapiens

<400> 60
Ala Ser Gly Leu Glu Thr Asp Ser Leu Gly Gly Val Leu Glu Ala Ser
1   5   10   15
Gly Tyr Ser Thr Glu
            20

<210> 61
<211> 10
<212> PRT
<213> Homo sapiens

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<400> 61
Ser Gly Leu Glu Thr Leu Asp Ser Leu Gly
1               5               10


<210> 62
<211> 22
<212> PRT
<213> Homo sapiens

<400> 62
Thr Leu Asp Ser Leu Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr
1               5               10              15
Glu Val Val Ala Leu Ser
            20


<210> 63
<211> 22
<212> PRT
<213> Homo sapiens

<400> 63
Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val Val Ala Leu
1               5               10              15
Ser Arg Gly Gln Gly Ser
            20


<210> 64
<211> 22
<212> PRT
<213> Mus musculus

<400> 64
Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala Phe Ser Lys Ser Cys
1               5               10              15
Ser Leu Pro Gln Thr Ser
            20


<210> 65
<211> 22
<212> PRT
<213> Mus musculus

<400> 65
Leu Leu His Leu Leu Ala Phe Ser Lys Ser Cys Ser Leu Pro Gln Thr
1               5               10              15
Ser Gly Leu Gln Lys Pro
            20


<210> 66
<211> 22
<212> PRT
<213> Mus musculus

<400> 66
Ala Phe Ser Lys Ser Cys Ser Leu Pro Gln Thr Ser Gly Leu Gln Lys
1               5               10              15
Pro Glu Ser Leu Asp Gly
            20
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<210> 67
<211> 22
<212> PRT
<213> Mus musculus

<400> 67
Cys Ser Leu Pro Gln Thr Ser Gly Leu Gln Lys Pro Glu Ser Leu Asp
1   5   10   15
Gly Val Leu Glu Ala Ser
            20

<210> 68
<211> 18
<212> PRT
<213> Mus musculus

<400> 68
Leu Pro Gln Thr Ser Gly Leu Gln Lys Pro Glu Ser Leu Asp Gly Val
1   5   10   15
Leu Glu

<210> 69
<211> 14
<212> PRT
<213> Mus musculus

<400> 69
Gln Thr Ser Gly Leu Gln Lys Pro Glu Ser Leu Asp Gly Val
1   5   10

<210> 70
<211> 22
<212> PRT
<213> Mus musculus

<400> 70
Thr Ser Gly Leu Gln Lys Pro Glu Ser Leu Asp Gly Val Leu Glu Ala
1   5   10   15
Ser Leu Tyr Ser Thr Glu
            20

<210> 71
<211> 10
<212> PRT
<213> Mus musculus

<400> 71
Ser Gly Leu Gln Lys Pro Glu Ser Leu Asp
1   5   10

<210> 72
<211> 22
<212> PRT
<213> Mus musculus

<400> 72
Lys Pro Glu Ser Leu Asp Gly Val Leu Glu Ala Ser Leu Tyr Ser Thr
1   5   10   15

Glu Val Val Ala Leu Ser
            20

<210> 73
<211> 22
<212> PRT
<213> Mus musculus

<400> 73
Asp Gly Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val Val Ala Leu
1   5   10   15
Ser Arg Leu Gln Gly Ser
            20

<210> 74
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Chimeric oligonucleotides

<400> 74
atgcaacagg acggacttgg agtagttttc uacuccaagt cagtccuguu gcaugcgcgt   60
ttcgcgc   67

<210> 75
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Forward Primer

<400> 75
tgtccacgtc gtttacgctc   20

<210> 76
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Reverse Primer

<400> 76
tcccacttcc gttccttgtc   20

<210> 77
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Probes endogenous/mutant

<400> 77
cctactccaa gtcmgtcctg ttgcatt   27

72

<210> 78
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Chimeric oligonucleotides

<400> 78
gaccctgccc tgtacctacc taccagatgt tttcaucugg uaggttcagg gcagggucgc   60
gcgtttt   67

<210> 79
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Forward Primer

<400> 79
gtggtgatcc tcttccagcc t   21

<210> 80
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Reverse Primer

<400> 80
ccagatgacg atgggttgc   19

<210> 81
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Probes endogenous/mutant

<400> 81
accctgccct gwcctaccag atgac   25

<210> 82
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Chimeric oligonucleotides

<400> 82
tggctgagct cttacctggt tttcattttt gaaaaccagg tcagagctca gccagcgcgt   60
tttcgcgc   68

<210> 83
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Forward Primer

<400> 83
gagctcatcg tccttgggag   20

<210> 84
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Reverse Primer

<400> 84
agtcttctat gggccccgc   19

<210> 85
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Probes endogenous/mutant

<400> 85
caccgactcg agamtggacc aaaagtc   27

<210> 86
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Chimeric oligonucleotides

<400> 86
ggttgtggta tgcctggctg ccttcttttg aaggcagcca gtcataccac aaccgcgcgt   60
tttcgcgc   68

<210> 87
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Forward Primer

<400> 87
acgcagagct catcgtcctt   20

<210> 88
<211> 20
<212> DNA
<213> Artificial Sequence

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<220>
<223> oligonucleotide Reverse Primer

<400> 88
gatgcccagg aggaggaaga                                    20

<210> 89
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Probes endogenous/mutant

<400> 89
caacaccata ckgaccgacg gaa                                23

<210> 90
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide mouse LSR specific primer

<400> 90
acgcatggga atcatggc                                      18

<210> 91
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Zinc finger nuclotides of SEQID1

<400> 91
taggggtgag cggcgggg                                      18

<210> 92
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Zinc finger nuclotides of SEQID1

<220>
<221> misc_feature
<222> 10..12
<223> n=a, g, c or t

<400> 92
gagggctggn nntaggggtg a                                  21

<210> 93
<211> 20
<212> DNA
<213> Artificial Sequence
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<220>
<223> oligonucleotide Zinc finger nuclotides of SEQID1

<220>
<221> misc_feature
<222> 10..11
<223> n=a, g, c or t

<400> 93
agggctgggn ntaggggtga   20

<210> 94
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Zinc finger nuclotides of SEQID1

<400> 94
gtgggagccg agggctgg   18

<210> 95
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Zinc finger nuclotides of SEQID1

<220>
<221> misc_feature
<222> 10
<223> n=a, g, c or t

<400> 95
gtgggagccn agggctggg   19

<210> 96
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Zinc finger nuclotides of SEQID1

<400> 96
gcggcggccg ggtgggag   18

<210> 97
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Zinc finger nuclotides of SEQID1

<400> 97

76

ttggccggag cagatggg   18

<210> 98
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide Zinc finger nuclotides of SEQID1

<220>
<221> misc_feature
<222> 10..11
<223> n=a, g, c or t

<400> 98
gcagatgggn nccggaaggg   20

<210> 99
<211> 21
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<213> Artificial Sequence

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